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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/966,221	09/28/2001	Thomas S. Laubner	17655	5888

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Tyco Technology Resources
Suite 450
4550 New Linden Hill Road
Wilmington, DE 19808-2952

EXAMINER

WIMER, MICHAEL C

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary	Application No. 09/966,221	Applicant(s) LAUBNER ET AL.	
	Examiner Michael C. Wimer	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-15 and 17-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6 and 17 is/are allowed.
- 6) ☒ Claim(s) 1,3-5,7-15 and 18-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1,3-5,7,8,14,15,18 and 23-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Openlander (6157348) in view of Murphy et al. (4051477).

Regarding Claims 1,3-5,7,8,14,15,18 and 23-36, Openlander describes a microstrip antenna used in a mobile vehicle, in column 1, lines 18-29, where the antenna may be made from p.c. board materials and techniques with an upper patch/disk mounted above a ground plane with the p.c. board therebetween, and the lower ground plane is mounted to metal body of the vehicle. Two ground planes are employed here in such an arrangement. Figures 3 and 4 of Openlander show the patch 44 disposed over the ground plane 42 via dielectric posts. It would have been obvious to the skilled artisan to employ a p.c. board to support the patch and ground plane as taught by Openlander in column 1. The embodiment in Figures 3 and 4 is to be mounted upon a vehicle body which is the first conductive ground plane claimed. The second ground plane is that 42 which raises the patch 44. A feed means 56 is shown. Murphy et al are cited as teaching that it is known to decrease the radiation angle of a microstrip antenna by raising it above a second ground plane (see Figures 5-7 of Murphy et al). The

lens 60 in Openlander lowers the radiation beam below 45 degrees as claimed.

It would have been obvious to employ the techniques of Murphy et al in the Openlander et al antenna, particularly since there are two ground planes employed therein. In other words, a skilled artisan would raise the antenna of Openlander to a predetermined height while maintaining enough pattern coverage in zenith, according to the realization in Murphy et al. Murphy et al. are merely cited to show that there is a trade-off between gain at zenith and at the horizon when attempting to raise the antenna above a ground plane. One skilled in the art would not raise the antenna in Murphy et al at position "c" if one wants to maintain some beam pattern in the zenith.

A skilled artisan would have found it obvious that there is no decrease in gain at zenith when the lens is employed in Openlander because Murphy shows at least three distances in Fig. 5 in which the patch may be disposed above the ground plane (30 in Fig. 6). When the distance "b" is chosen, for example, there is no decrease in gain at the zenith unless the distance "c" is employed. Since Openlander uses the lens to provide improved gain below 45 degrees, one skilled in the art would not choose to raise the antenna to distance "c" according to Murphy et al. Distance "b" would be useful. Thus, a skilled artisan would lower the distance between ground planes, say for example from "c" to "b" as taught by Murphy in order to maintain a usable gain at the zenith. The same could be said by lowering the distance from "b" to "a" and then employing a lens to provide more pattern toward the horizon. Trade-offs occur when specific

patterns are desired. A skilled artisan recognizes the techniques used by both patentees and utilizes them according to need.

The lens 60-64 in Openlander is formed as a dome. Specific gain and angles in the pattern are obvious to vary to the skilled artisan because they depend upon materials used for the lens and its thickness. Undue experimentation is not needed.

3. Claims 9-13 and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Openlander in view of Murphy et al. as applied to claims above, and further in view of Nichols et al. (5831577).

Adding a monopole to a microstrip antenna is shown to be obvious by Nichols et al in Fig. 3, where a dielectric 68 is disposed around the monopole 66. It would have been obvious to add a monopole to the Openlander/Murphy et al antenna for adding an additional frequency band in the system.

Allowable Subject Matter

4. Claims 6 and 17 are allowed.

Response to Arguments

5. Applicant's arguments filed 6/23/2005 have been fully considered but they are not persuasive. Specifically, as set forth in the previous Office action, it can be seen that lowering the distance between ground planes (as taught by Murphy et al) can increase gain at zenith, while the lens structure in Openlander increases gain near the horizon (below 45 degrees). These two techniques may be employed together because the purpose in Openlander is not destroyed. A skilled artisan recognizes as obvious that

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these techniques may be employed in conjunction in order to establish the type of radiation pattern desired. It must be kept in mind that Openlander is concerned with the overall height of the antenna and does not want to increase it. He uses a lens to lower the radiation pattern in the range claimed by applicant. Murphy merely teaches to employ a ground plane disposed above the main ground in order to lower the radiation pattern toward the horizon. Hindsight is not employed in the obviousness rejection because the two techniques are known to compliment each other. Openlander designs his antenna according to Murphy et al. because the antenna is raised a particular amount above the ground plane and the ground plane of the car. Then, Openlander employs the technique of lens action by providing the lens 60 in order to lower the beam to his specifications. See column 3, first paragraph and the paragraph bridging columns 5 and 6 of Openlander. Since evidence of obviousness has been set forth according to design criteria used in both references the claims at hand do not appear to define over the prior art. Therefore, the rejections stand.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Wimer whose telephone number is (571) 272-1833. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun O. Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael C. Wimer
Primary Examiner
Art Unit 2828

MCW
8/25/2005